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EPA 904/9-79-044E
October 1979

EPA Environmental Impact Statement

DRAFT

Estech General Chemicals Corporation
Duette Mine
Manatee County, Florida

TRANSPORTATION

RESOURCE DOCUMENT

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16. Abstract

The Draft Environmental Impact Statement for the Estech General Chemicals (formerly Swift Agricultural Chemical) Duette Mine is enclosed for your review and comment. The document has been prepared pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) (Public Law 91-190) and applicabel EPA regulations at 40 CFR Part 6.9. Thirteen volumes of resource documents were also prepared. These resource documents comprise the detailed technical evaluations of the alternatives and the proposed action and contain supporting data related to the Draft EIS. While the Draft EIS is a complete document.

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TRANSPORTATION

RESOURCE DOCUMENT

Draft Environmental Impact Statement

Swift Agricultural Chemicals Corporation
Duette Mine Site
Manatee County, Florida

October, 1979

Prepared for: U.S. ENVIRONMENTAL PROTECTION AGENCY
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30308

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TRANSPORTATION
RESOURCE DOCUMENT

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NOTE:

Effective August 1, 1979, Swift Agricultural Chemicals Corporation changed its name to Estech General Chemicals Corporation.

The preparation of the Draft Environmental Impact Statement was substantially completed at the time of the name change. Therefore, the name of Swift Agricultural Chemicals Corporation (Swift) is used throughout the Draft Environmental Impact Statement and all attendant Resource Documents.

TRANSPORTATION

1. BASELINE

1.1 Roads

The road network in the primary impact area of the proposed Swift Duette Mine is shown on Figure 1-1.

All thoroughfares with the exception of Duette Road are state roads. All state roads are twenty-four foot wide, paved, undivided rural sections.

Duette Road is maintained by Manatee County and is a twenty-four foot wide paved rural section from State Road 62 south for approximately four miles. The remainder of Duette Road is a graded shell roadway, which connects with State Road 64 to the south.

All state roads are in good condition, whereas Duette Road, in the paved portion is in fair condition.

Planned Improvements - The only planned improvements to the road network in the primary impact area is the extension of State Road 39 to the south, to connect to State Road 64. The right way for this road extension was obtained from

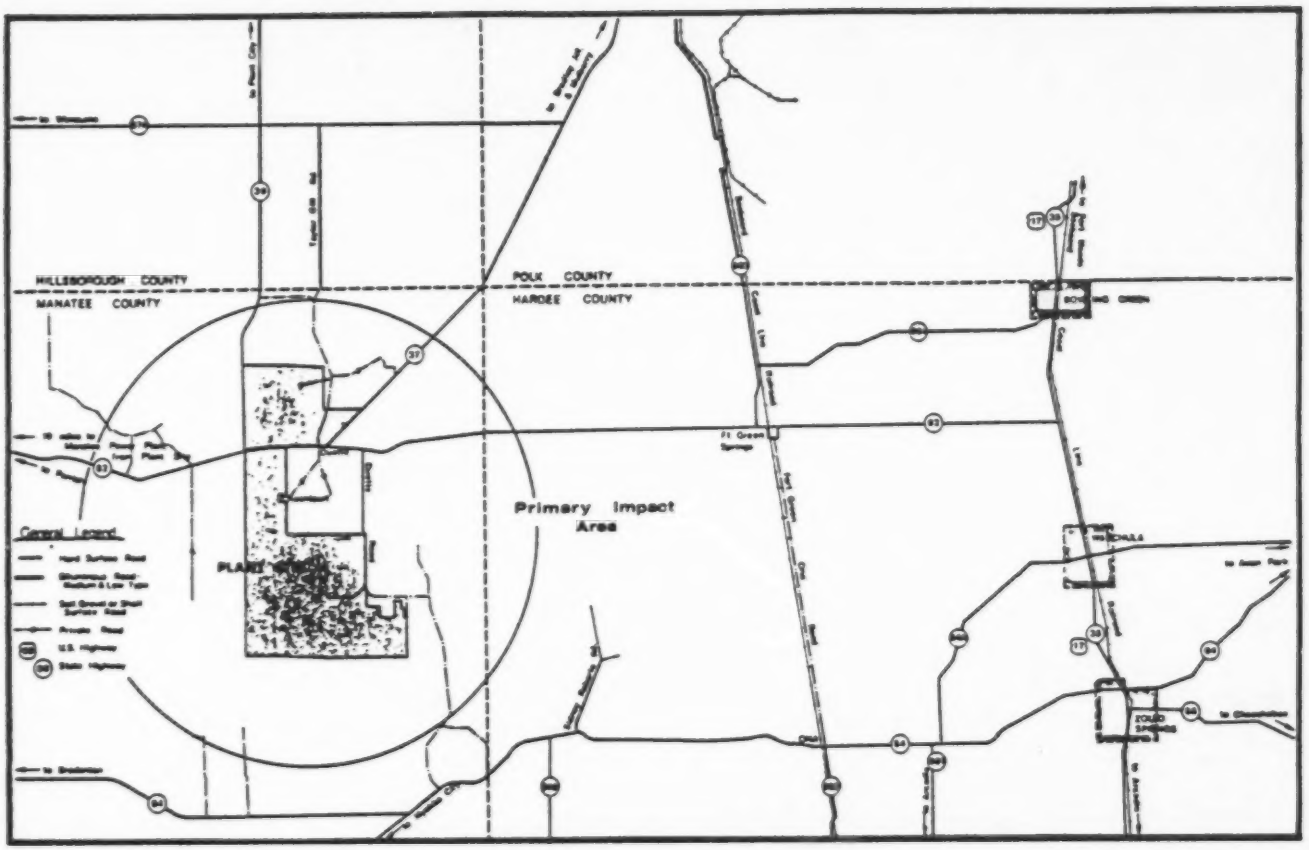

FIGURE 1-1 EXISTING TRANSPORTATION NETWORK Source: Civil Engineering Consultants, Inc.	U.S. EPA - REGION IV DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR SWIFT AGRICULTURAL CHEMICALS CORPORATION PROPOSED DUETTE MINE, MANATEE COUNTY, FLORIDA

Manatee County by the Florida Department of Transportation. The "Florida Highway and Street Construction Needs 1972-1990," prepared by the F.D.O.T., scheduled this construction for the period 1976-1980. However, as per the latest state five year construction plan, no activity in this area is scheduled. (Swift Agricultural Chemicals Corporation, 1978).

Traffic Flows - Figure 1-2 gives the latest F.D.O.T. twenty-four hour average daily traffic counts for the road network adjacent to the proposed mine site. These counts are taken four times per year by the F.D.O.T. and averaged so as to account for seasonal variation.

Additional counts were taken by Civil Engineering Consultants in July 1976 and seasonally adjusted. These counts are shown on Figure 1-2 with an asterisk, and they have been adjusted to the year 1977.

Future traffic flows without the proposed mine are shown in Table 1-A. The 1977 F.D.O.T. counts were used as a base, and traffic flows were projected to the year 2000. An eight percent growth factor was assumed. This would appear to be quite conservative due to a recent growth rate in that area of four percent. However, with the strong potential for additional mining operations (i.e. Grace D.R.I., Beker D.R.I.) the eight percent figure appeared to be justified.

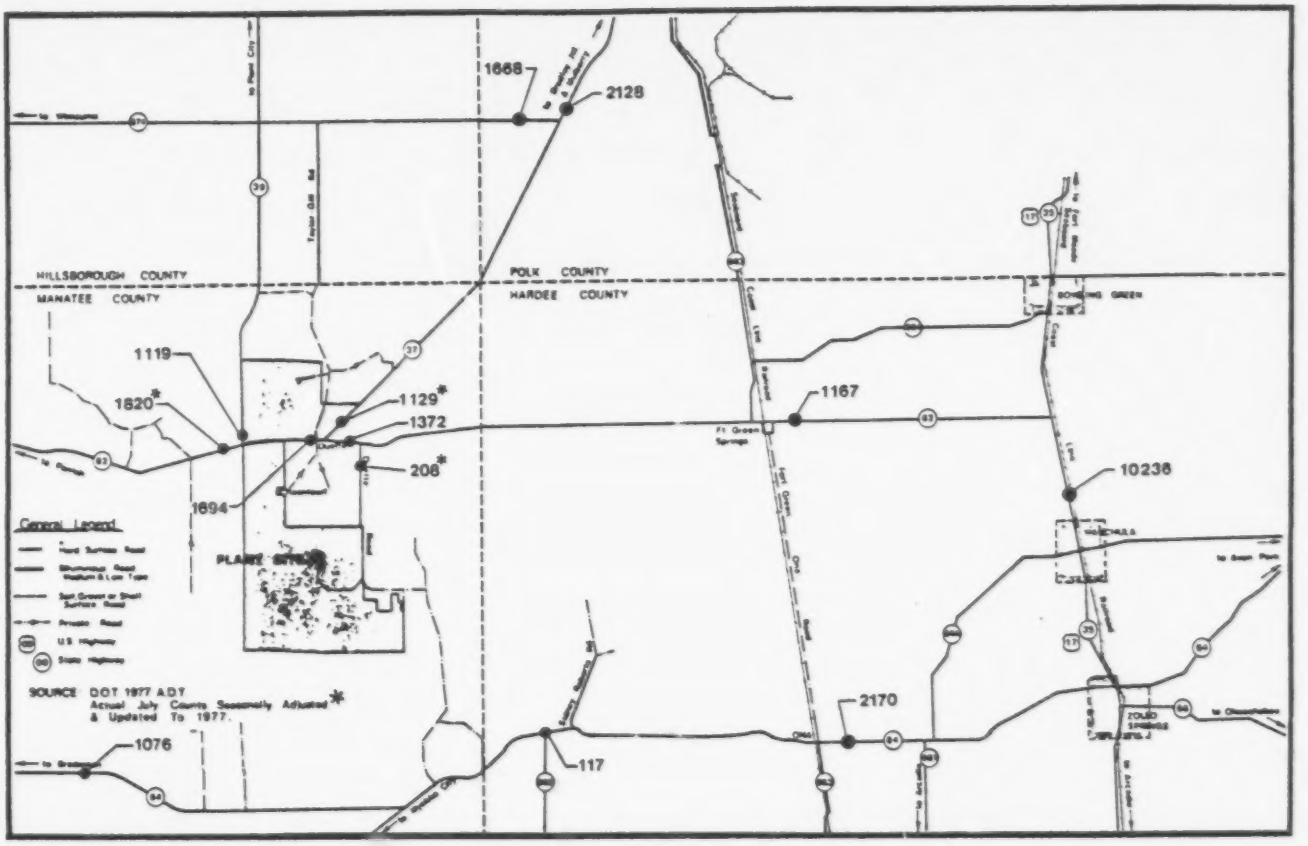

FIGURE 1-2 1977 AVERAGE DAILY TRAFFIC - TWO WAY FLOW Source: Civil Engineering Consultants, Inc.	U.S. EPA - REGION IV DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR SWIFT AGRICULTURAL CHEMICALS CORPORATION PROPOSED DUETTE MINE MANATEE COUNTY, FLORIDA

Table 1-A Projected Highway Traffic Without Proposed Mine

Location	1977	1980	1990	2000
State Road 39	1119	1410	3044	6572
State Road 62 (west of SR 37)	1694	2071	4471	9653
State Road 62 (east of SR 37)	1372	1728	3731	8055
State Road 37	1129	1422	3070	6628

Peak hour periods, observed during the July traffic counts, occurred between 10:00 to 11:00 am and 4:00 to 5:00 pm. The morning peaks were the higher of the two with peak hour factors of approximately six percent occurring on the roads within the primary impact area. The evening factors range from four to five percent of the total twenty-four hour average daily traffic.

Directional flows during peak hours were evenly disributed and never favored any specific direction. This is common in many rural areas which are quite remote from a Central Business District or any significant traffic generator. Phosphate mines in nearby Polk and Hillsborough counties do not generate a significant amount of commuter traffic in Manatee County. A license plate study performed at two mines in Polk County, by Civil Engineering Consultants, indicated that approximately 95 percent of the employees come from Polk County.

Levels of Service - As per the "Highway Capacity Manual,

1965" published by the Transportation Research Board, Washington D.C., service level "A" exists during the peak hour on all roadways within the primary impact area. The calculations to determine levels of service are based on:

1. Twenty eight percent truck traffic
2. No lateral clearance problems
3. Twelve foot lanes
4. Two lane divided, rural highway
5. Level terrain, passing sight distances greater than 1500 feet for at least 80 percent of the time.

1.2 Railroads

The existing railroad network, which will be effected by the proposed Swift Duette Mine, is shown on Figure 1-3. Seaboard Coast Line Railroad supplies the freight service in the study area and throughout most of the state.

Tampa/Lakeland Area - The Polk and Hillsborough County phosphate district generates the majority of rail traffic to the Tampa and Lakeland terminals. Based upon actual tonnage of phosphate shipped through the Port of Tampa, approximately 800 of the 1600 cars per day handled by the main Tampa terminals carry phosphate ore and various by-products. The present capacity of these main terminals is 2000 cars per day, as noted in the "Florida State Rail Plan."

The Lakeland terminal is somewhat smaller and handles approximately 900 cars per day of general freight and some phosphate by-products according to the previously cited rail

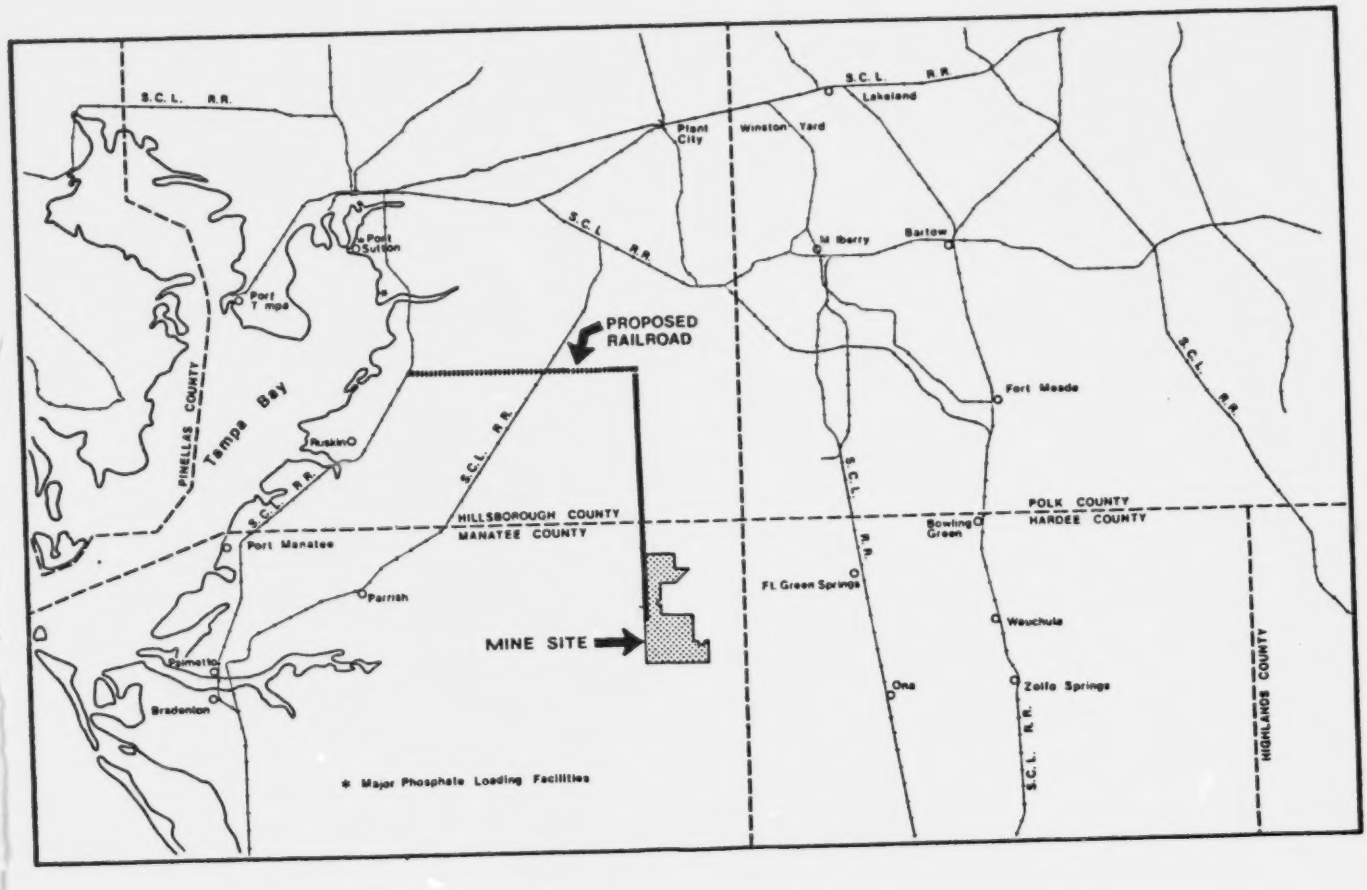

FIGURE 1-3

RAILROAD FACILITIES AND PORT LOCATIONS

Source: Civil Engineering Consultants, Inc.

U.S. EPA - REGION IV
DRAFT ENVIRONMENTAL
IMPACT STATEMENT FOR
SWIFT AGRICULTURAL CHEMICALS
CORPORATION PROPOSED
DUETTE MINE
MANATEE COUNTY, FLORIDA

plan.

In the heart of the phosphate district, at Mulberry, is the main yard, which handles some 1400 cars per day. Over 40 percent of that traffic heads north through Lakeland, with the remainder moving west to Tampa and its phosphate loading facilities.

Presently there is no phosphate loading facility at Port Manatee.

There is a facility at Port Boca Grande which is not in full operation. The rail link between this port and the phosphate district is in very poor condition. Presently, it is pending abandonment in DeSoto, Sarasota, Charlotte and Lee Counties. However, as phosphate mining moves southward into eastern Manatee and DeSoto Counties, the preservation and possible expansion of the port and its rail link to those counties could be a reality.

Projected Rail Traffic - Assuming that rail car traffic will increase with the increased mining of phosphate ore, there should be a 25 percent increase in the number of rail cars by 1990. These figures are based upon projected increases in tonnages of phosphate ore at Port Tampa, which were reported in the 1968 Stanford Research Institute study of that port facility.

That same study predicts a 50 percent increase in tonnage between 1990 and 2000. Resultant total tonnages will create the demand for approximately 1500 cars on a daily basis, moving phosphate into Port Tampa, in the year 2000.

Planned Improvements - The key improvement to the railroad network surrounding the Swift Duette Mine will be the construction of a major rail link between both eastern Manatee, and southeastern Hillsborough Counties and a Seaboard Coastline Facility. As of this date, plans for such a major undertaking are tentative and quite preliminary.

There will most certainly be a rail line constructed, when one considers the strong probability that three Manatee County sites could be mining at the same time (i.e. Grace Four Corners Mine, Beker Mine and Swift), and in the same immediate location.

Seaboard Coast Line has completed the basic plans for a rail link, which will probably be constructed as shown on Figure 1-3. However, a more favorable rail link could be a line due west from Duette into Port Manatee. The latter being contingent upon development of a major phosphate loading facility at that seaport.

1.3 Ports

Port Tampa and Port Manatee by their geographical location

will probably handle the majority of phosphate generated at the Swift Duette Mine. The latter port must develop a bulk loading facility in order to serve the future phosphate mines proposed in Manatee County. The Port of Boca Grande will not be considered due to its location and poor condition of rail facility.

Port Tampa - The Port of Tampa is the nation's 8th Largest Port Facility. During 1977 over 46 million tons of cargo passed through this facility. Approximately 24 million tons of that total was attributed to the handling of Bulk Phosphate and phosphatic chemicals.

The Port of Tampa has seven major dry bulk loading facilities with a total loading rate of over 13,000 tons per hour. The larger terminals are Eastern and Rockport in Tampa. Both facilities have a loading rate of 3,000 net tons per hour. The latter is operated by Seaboard Coast Line Railroad. Agrico Chemicals Company maintains the other major loading facility in nearby Gibsonton.

The Eastern terminal is presently handling 7 million tons of phosphate per year. Rockport handled 6 million tons and Agrico transported approximately 2.5 million tons during 1977. The remaining tonnage was distributed among the smaller loading facilities.

A 1968 study of the Port of Tampa by the Stanford Research

Institute predicted that the port would handle approximately 73 million tons of cargo by 1990 and 100 million by the year 2000. Phosphate tonnage forecasts were 25 million and 37 million tons for 1990 and 2000 respectively. The current trend would indicate that the phosphate forecasts are low. During 1977 approximately 19 million tons of phosphate rock was handled at the port.

The Port of Tampa has shown an ability to increase its capacity for handling phosphate rock in the recent past. The construction of several new loading terminals since 1968 has more than doubled their capacity for handling bulk phosphate. Furthermore, a major dredging project is underway, which will deepen the port channels to allow for larger and more modern barges. In the recent past, many barges could not take on a full load of phosphate rock for fear of running aground in some of the channels.

As one would expect, a major port facility like the Port of Tampa is not without its problems. With respect to phosphate handling, there appears to be two key problems. The lack of storage facilities for phosphate rock and by-products at the loading terminals and the lack of rail cars to move the rock. The lack of cars, to an extent, is due to the lack of storage facilities. In many instances, rail cars are being utilized as temporary storage facilities.

Port Manatee - Port Manatee is located as shown on Figure

1-3. The facility began operations in 1970 and is capable of handling general cargo along with maintaining liquid and dry bulk handling facilities. The dry bulk cargo is primarily fertilizers. Currently, the port has no phosphate rock loading facilities. However, as mining begins in eastern Manatee County, the probability of such a facility at the port will be very high.

Table 1-B gives the current and projected tonnages at Port Manatee. A study by Frederic R. Harris, Inc. in 1974 and subsequently updated in 1976 did not accurately predict future growth through 1978. This was due to the rapidly changing conditions at the port.

Table 1-B Present*, and Future Tonnages (in 000's tons)

	1977	1978	1980**
Phosphate	192	335	250
Total all Tonnage	3,454	4,450	4,101

*Actual figures supplied by Port Manatee

**Harris Study updated 1976

The Harris updated study forecast is somewhat low. The original forecast in the 1974 study was 8.5 million, which is considerable higher than the expected 1980 figure of 6.4 million predicated by Civil Engineering Consultants.

Forecasts for 1990 and 2000 will not be given at this time. It can be said at this point that future tonnages will depend greatly on the following factors:

1. Phosphate Mining in Manatee and DeSoto Counties
2. Construction of a railroad spur from eastern Manatee to the Port
3. Construction of a major bulk loading facility at Port Manatee

1.4 Interstate 75 Construction

The construction of Interstate 75 between Tampa, Manatee and Sarasota Counties will have a profound effect on all modes of transportation. Construction has begun in Sarasota and Manatee Counties and is scheduled for completion in the early 1980's. The section between northern Manatee and Tampa should be completed sometime thereafter in the mid 1980's.

2. IMPACT

2.1 Roads

The road network shown in Figure 1-1 is the primary impact area and this area will undergo an increase in vehicular traffic due to the proposed mining operation. The initial increase will be due to the construction of the plant site, whereas later increases in traffic will be due to the daily operation of the mine itself. Traffic generation from the Beker and Grace proposed mines has been considered in this analysis.

Trip generation volumes, during mining operation, peak hour percentages, directional flow, and origin destination characteristics are based upon actual trip generation studies, performed by Civil Engineering Consultants, Inc., during August and September of 1976. These studies were later published by the Florida Department of Transportation in their " 1977 Trip Ends Generation Research. "

Construction Phase - Based upon an average employment of approximately 450 construction workers during the two-year construction phase, 1170 trips per day will be generated. Eighteen to twenty percent of those trips will be truck traffic. The A.M. arrival and P.M. departure of the workers will create the peak hour periods of vehicular activity. The peak hour volume will be approximately 500 trips per hour. It is anticipated that the construction phase will operate on an eight to ten hour day.

The effect of the construction phase traffic will not cause a significant impact upon the road network shown in Figure 1-1. Service levels will remain in the free flow category through construction and into the mining phase.

Mining Phase - The latest projections show that from 320 to 340 workers will be employed at the site during the mining phase. Typical of most existing mines, the Swift Duette Mine will operate around the clock with three eight-hour

shifts. The heaviest shift will be the day shift, where most of the maintenance and office employees will work.

The mining operation will generate approximately 1630 trips per twenty-four hour period. Said trips will be attributable to the following operations:

Employee Commuter Traffic	40 percent
Vendor Deliveries	20 percent
Work Related	40 percent

The major peak hour will occur when maintenance and dragline crews change shifts between 6:30 and 7:30 A.M. It is anticipated that 190 trips will be generated during that hour. A lesser peak will occur when the office workers arriveat 8:00 A.M. Truck traffic during the peak hours will be around nine percent. Total traffic output during a twenty-four hour period will be approximately fifteen percent. The distribution of both peak hour and twenty-four ADT's (Average Daily Traffic) to the road network in the primary vehicular impact area have been established and mapped (Swift Agricultural Chemicals Corporation, 1978, maps).

Traffic generated by the Duette Mine will not have a significant impact on the thoroughfares within the primary impact area. Service Level "A" (Free Flow) will be maintained through 1985. However, the normal traffic growth expected after that period will cause a decrease

in service levels by 1990 (Table 2-A). Service Level "B" is expected on all extended sections of state roads by 1990, and Level "C" will be developed by 2000. These levels will occur during the peak hour of mine operation.

The state road intersections (i.e. S.R. 62 at S.R. 39, S.R. 62 at S.R. 37) will operate at lower levels of service than the extended road sections. Should these intersections remain geometrically unchanged, Service Level "C" will occur by 1930 during the major peak hour. By 1990, service levels will decline to "D", and by 2000 these intersections will be at capacity. After peak periods, these intersections will operate at Service Level "C" or better through 2000. The lowering of service levels is a significant negative impact.

Duette Road will be the only entrance to the plant site. Consequently, it will undergo the most severe effect. However, the road will still operate at Service Level "B" or higher through 2000. This fact is due primarily to the lack of growth in traffic due to non mine sources through 2000. The mine traffic thus creates an insignificant impact.

The prior projections on Duette Road could be more significant if this road becomes a major connector between S.R. 62 and S.R. 64. It is not anticipated that this situation will occur due to the unimproved status of Duette Road from the proposed plant site south to S.R. 64.

There is no existing railroad spur that could serve the proposed site. The possibility that no railroad will be built is very remote, especially when there are two mines already approved by Manatee County in the immediate area (i.e. Beker Phosphate and W.R. Grace and Company). Should the estimated three million tons per year of phosphate ore be transported by truck, it would create a significant negative impact on the road network in the primary impact area, and on the road network adjacent to the nearby seaports.

It would require four hundred (400) truckloads (20 tons per truck) per day on a twenty-four hour, year-round basis to transport the phosphate to port. This operation will add a total of eight hundred (800) trips to the road network on a daily basis. It will create an increase from 28 percent to 47 percent in truck traffic during the mining phase and accelerate the decline in levels of service at all intersections and extended sections of roadway in the primary impact area.

In addition, the major roads in the Port of Tampa area will also be affected. These roads are presently at capacity and the addition of some thirty (30) truck trips during any given hour will add to the existing traffic congestion. The road network at Port Manatee is presently operating at Service Level "A". It could withstand the increase in truck

traffic without any adverse effect. Furthermore, U.S. 41 in the area of Port Manatee is expected to operate at Service Level "C" through 2000 according to the Hillsborough County Planning Commission's "Year 2000 Traffic Assignments". These assignments were updated as of August, 1978 to include a major residential and commercial development at Apollo Beach. These projections assume Interstate 75 will be constructed between Tampa and northern Manatee County. The latest Florida D.O.T. projections indicate that this portion of Interstate will be completed by 1985-1986.

A more probable occurrence would be a railroad strike. In that case, the prior stated truck projections would be a worst possible case (i.e. a prolonged strike). In a short-term strike situation or a contract for rock delivery to a nearby location, a lesser amount of trucks would be used. Phosphate ore could be stockpiled on site in anticipation of an end to a strike. The additional trips during a strike would not create a significant negative impact.

2.2 Railroads

The proposed mining operation will generate one hundred, 80-ton rail cars per day. Approximately eighty percent of that traffic will go to a seaport. Should a rail system be constructed to the Swift Mine, it will be able to transport the ore using the "Unit Train Method" now being

used by mining operations in Polk and Hillsborough Counties. This method gives a railway system an infinite capacity theoretically.

The constraints on such a system are not the capacity of the rail line, but the capacity of the loading and unloading facilities, and the storage capacity at the Port destination. The availability of cars and locomotives is also a limiting factor. All of the above are examples of the problems occurring today on the Seaboard Coast Line Railroad System which serves the Port of Tampa. The addition of 100 rail cars on this system will create a negative impact on the rail system.

The rail system serving Port Manatee is in its early stages and basically has no capacity problems. The increased traffic from the proposed mine would not have a significant impact, assuming a suitable bulk loading facility was constructed at the Port, with adequate storage capability.

2.3 Ports

Three million tons of phosphate ore will be produced per year by the proposed Swift Duette Mine. The ore will be transported to a port facility in the Tampa Bay Area.

Port of Tampa - Presently, the Port of Tampa has the only major bulk loading facilities capable of handling the

anticipated production from the proposed mine. The existing loading facilities will have the ability to handle the mine output without any significant adverse impact. However, due to the lack of storage facilities, rail cars, and traffic congestion of U.S. 41 caused by the shipment of phosphate ore, it is apparent that there will be a significant negative impact on the Port of Tampa area as a whole from the movement of the projected three million tons per year.

Port Manatee - Should Port Manatee construct a major bulk loading facility, the Swift Duette Mine projection would create a very significant beneficial impact on those facilities and the Port Manatee area in general.

3. MITIGATING MEASURES

3.1 Roads

The recommended modifications at the intersection of S.R. 62 and Duette Road would include widening to incorporate turning lanes and possibly signalizations. These modifications would be to the specifications of the Florida Department of Transportation and would mitigate any adverse impact that would occur at this location.

3.2 Railroads and Ports

As a general overview, the construction of a railroad line directly to Port Manatee, should the Port develop a major

loading facility, would be the most profound mitigating measure. Increased rail traffic would not impact the congested Port of Tampa railway network and would prevent further burdening of the Port of Tampa storage facilities and Port traffic circulation.

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